Truth, Power and Capitalist Accumulation in Mathematics Education

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Abstract In this chapter I raise a set of questions intended to make us reflect on our work as researchers, namely in the way we propagate and naturalise common assumptions or truths about mathematics education, as well as the mechanisms of power that makes it difficult for us to see beyond these well-accepted truths. I suggest that some of the forces that impact upon and restrict socially just outcomes for mathematics education are not just "external", that is, originated outside the mathematics education community, but also, and perhaps more importantly for us, from the way research itself addresses the teaching and learning of mathematics in schools. Instead of positing ourselves as the beautiful souls of mathematics education, my invitation is for us to posit ourselves as part of the problem, and be willing to address some of our ideological assumptions before relegating to the social and political world the causes of our discontentment. For this purpose, I will rely on Foucault's and Lacan's works on the notion of truth, as a way to explore the role that contemporary mathematics education plays within capitalism.

Keywords Truth · Power · Capitalist accumulation · Foucault
Lacan

1 Introduction

This chapter originates from an invitation made by the organisers of the ICME-13 Topic Study Group on the *Social and political dimensions of mathematics education*, to address issues of power and truth in mathematics education—timely questions that involve all of us who work in mathematics education. In my work, I have been arguing for the importance of researchers to address not only questions that concern the learning and teaching of mathematics in schools, but also the role of research itself in the creation and maintenance of much of the predicaments that

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M. Jurdak and R. Vithal (eds.), *Sociopolitical Dimensions of Mathematics Education*, ICME-13 Monographs, https://doi.org/10.1007/978-3-319-72610-6_6

characterise the field. It is my contention that without a critical reflection that posits research as part of the ongoing problem of failure in school mathematics, researchers lack a meaningful mapping of the key challenges for mathematics education. As such, this chapter raises a set of questions intended to make us reflect on our work as researchers, namely in the way we propagate and naturalise common assumptions or truths about mathematics education, as well as the mechanisms of power that makes it difficult for us to see beyond these well-accepted truths.

In what follows, I will briefly present and discuss what I consider to be some of the keystone truths of mathematics education, and outline the mechanisms of power that allow for the sedimentation of these truths. Throughout the text, I will address some of the questions raised in the Topic Study Group call. I will propose that some of the forces which impact upon and restrict socially just outcomes for mathematics education are not just "external", that is, from outside the mathematics education community, but also, and perhaps more importantly for us, from the way research itself addresses the teaching and learning of mathematics in schools. Instead of positing ourselves as the *beautiful souls* (Pais 2017) of mathematics education, my invitation is for us to posit ourselves as part of the problem, and be willing to address some of our ideological assumptions before relegating to the social and political world the causes of our discontentment.

2 Truths in Mathematics Education

What are the truths en vogue today in the mathematics education community? Although being a large and highly diversified field of research (for ICME-13 alone there were over 50 Topic Study Groups in different areas), there are common shared assumptions that most of the people working with mathematics education assume. These can be called the truths of the field, in the sense that they provide a common platform on which all agree, notwithstanding the array of different practical, methodological or theoretical approaches. These truths often remain un-theorised. They are rather taken for granted as "evident" or posited as an ideal to be achieved. In this section I will discuss five of these truths, informed by some of my previous work.

2.1 School Mathematics Should Be Enjoyable

Mathematics is at once a corner stone of modernity and a headache. Its paramount presence in modern achievements, its role in providing a language for science and technology, and its importance for economic development, contrasts with the renowned lack of knowledge, if not aversion, that a significant part of the world population holds for this subject. School mathematics is often portrayed as a difficult and unpleasant subject not only by students, but also by teachers who see themselves in the situation of having to teach something they are not quite comfortable with.[1] Against this reality, researchers struggle to turn mathematics into the object of students' (and teachers') desire. In our days, it is not enough for a student to do well in mathematics, passing the exam and moving on with life. Students also have to enjoy or even to love (Boaler 2010) mathematics. As expressed by Cobb (2007), students should learn mathematics in order to develop an "empathy for a sense of affiliation with mathematics together with the desire and capability to learn more about mathematics when the opportunity arises" (p. 9). The purpose seems to be not only to guarantee that students learn mathematics in a meaningful way, but also in an *enjoyable* way. Curricular reforms around the world have been trying to change the negative image of mathematics by presenting it as something interesting, related to students' reality, and enjoyable, as something that could be fun.[2]

Although alluring in prospect, a Foucauldian approach to school as an institution concerned with normalisation, and the curriculum as a system of reason, allows for a critique of the idea that mathematics should be enjoyable. Curricular reforms that posit mathematics as enjoyable and fun show how education concerns not only knowledge and competences, but also the innermost feelings of the students (empathy, desire, love, delight, etc.)—thus constituting what Foucault (1997) calls a *technology of the self* (Foucault 1997) aimed at fabricating the kind of subjects susceptible to being governed (Popkewitz 2004). According to Fendler (1998), the purpose of current educational systems is to govern the soul. Teachers have not only the responsibility to govern the moral, but also the feelings, the desires, and anxieties, in order to produce the wanted citizen: "becoming educated, in the current sense, consists of teaching the soul—including fears, attitudes, will, and desire" (p. 28). Although presented as a liberating and emancipatory experience, the appeal to enjoy mathematics conceals a deeper attempt to control not only people's knowledge, but also, and perhaps more importantly, their feelings.

2.2 People Use Mathematics in Their Daily Lives

Common sense says that people do not use mathematics in their daily lives. Research often confirms this unimportance of mathematics for mundane activities (e.g., Brenner 1998; Jurdak 2006; Williams and Wake 2007). However, instead of questioning the presupposition that people need mathematics for their mundane or professional activities, research takes to itself the task of improving the utility of

[1]This is particularly the case with primary teachers who, besides mathematics, have to teach all the other subjects.

[2]See, for instance, the United Kingdom, Portugal and Sweden curriculums, where enjoyment is posited as one of the main goals for the teaching and learning of mathematics: "the subject aims at pupils experiencing delight in developing their mathematical creativity, and the ability to solve problems, as well as experience something of the beauty and logic of mathematics" (Utbildningsdepartementet 2000).

mathematics (Lundin 2012). This is done by means of developing deeper analysis and positive experiences whereby students actually transfer mathematics from and into school: people do not use mathematics, but (because they should) we need to continue developing efforts to change this situation.

Elsewhere I analyse in depth the ideology perpetrating the assumption that mathematics is important as use-value (Pais 2013). Here, I take Murad Jurdak's research as an example of the functioning of this ideology. After concluding that "the activity of situated problem solving in the school context seems to be fundamentally different from decision-making in the real world because of the difference of the activity systems that govern them" (Jurdak 2006, p. 296), and that students "define their own problems, operate under different constraints, and mathematics, if used at all, plays a minor role in their decision making" (p. 296), Jurdak nevertheless, insists on the importance of confronting students with real-life situations: "simulations of such authentic real life situations as embedded in situated problem solving may provide a plausible option to develop appreciation of the role, power, and limitations of mathematics in real world decision-making" (p. 296). He adds, "though *quite differen*t in real life from that in school, the process of mathematization is *essentially the same* and having experience in it in a school context may impact on mathematization in real life" (p. 297, my emphasis). When confronted with the difficulties in transfer, Jurdak proceeds by eliminating the obstacles, so that the higher goal of making mathematics useful for people's lives can be kept. Instead of assuming the impossibility of transfer (Evans 1999; Gerofsky 2010), the researcher ends up creating an ideology whose purpose is precisely to disavow such impossibility. It is impossible to find support in the research reported in Jurdak's text for such statements. The belief that the exploration of real-life situations in school will impact on the way in which people use mathematics in real life is based on a leap of "faith" (Lundin 2012), thus ideology at its purest. The emergent question is thus: why do researchers continue to argue for the importance of mathematics as use-value, notwithstanding all the evidence that people do not use school mathematics in their daily lives?

2.3 Mathematics for All

Currently, the ideal of a "mathematics for all" is systematically (and uncritically) foregrounded as the ultimate horizon guiding our engagement in the field (Pais 2012, 2014). A slogan such as "mathematics for all", functions as a *master-signifier* (Žižek 2012), a banner upon which we all agree, uniting the field, thus offering a space whereby different perspectives, theories and methodologies, can "work together". "Mathematics for all" can be seen as a fantasy formation, whose purpose is not (only) to make sense of the world in a wholly way, but precisely to conceal the impossibility of making sense of it. Although we know that mathematics is not for all, that it serves other purposes than the ones related with knowledge and competences, and that many students find it meaningless or even traumatic, we rely on the illusion that mathematics can indeed be for all, that it can be an adventure into knowledge, and a pleasurable and useful subject for students. The shocking evidence that school mathematics is nothing of this does not inhibit from partaking in the illusion that it can indeed be so. As a result, instead of asking why is it not so, we keep researching how can it be so.

In a recent conversation with a colleague around these issues, he claimed that although we know very well that mathematics is not for all, we should refrain ourselves from saying it out load. Admitting that mathematics is not for all will potentiality diminishing its importance in schooling (who says “geography for all”?), with direct consequences for our work as researchers. It is because mathematics plays such a relevant role in society and schooling that we, as a research community, enjoy privileged funding and working opportunities. As I explore elsewhere (Pais 2017), what this discourse renders evident, however, is how research is about nothing but itself. It seems that research is not about improving school mathematics, but about using the miserable state of school mathematics to give researchers conditions to develop their work.

2.4 Researching Success

Notwithstanding all the evidence that mathematics is not for all, this ideal is posited as an achievable goal, and emphasis is given to the exploration of successful experiments, where students seem to learn meaningful mathematics for their lives. To develop and broadcast successful experiences seems to be the aim of research (e.g. Gutiérrez 2010; Sriraman and English 2010).

What can classroom examples say to us about the ideal of “mathematics for all”? As any teacher knows, in a class of thirty students there will always be some (often many) who fail. The crude reality tells us that the ideal is at least an illusion (when not a straightforward bait). In order to enable success, however, researchers set and organise classroom data in a way that can corroborate a priori assumptions. As Paola and I explore (Pais and Valero 2012), in Luis Radford’s theory of cultural objectification, for instance, the examples used to support the theory (2006, 2008) are all reports of successful experiences, whereby pupils always acquire (objectify) the mathematical content demanded by the teacher. The research environment is set in a way as to avoid friction and allow a meaningful mathematics learning to occur, and the classroom examples are chosen to fit the theory. Radford’s theory of objectification drifts at the very moment we try to imagine it applied in low-streaming schools in Germany (Straehler-Pohl and Pais 2014), schools in post-apartheid South-Africa (Skovsmose and Valero 2008), ghetto schools in the US (Gutstein 2003), or even a public European school struggling with imposed forms of mathematics that do not match the safeness and aseptic schooling characteristic of Radford’s research settings (Brown 2011). In these settings, very seldom do students “unite” (Radford 2006, p. 54) with the culture of mathematics in the way envisage by Radford’s theory. Contrary, what often occurs is precisely a refusal to identify with the mathematical successful learner envisaged by the curriculum (Pais 2016).

For research to break with this "epistemological obstacle" (Bachelard 2002) it needs to seriously take its object of study—the teaching and learning of mathematics—as "it is" instead of how it "ought to be" (Pais and Valero 2014). Moreover, it has to posit its object as the very arena in which research assumptions are tested. This implies moving from questioning "what can a school do if it wants to engage all of its students actively and productively in relevant mathematics learning?" (Clements 2013, p. ix), to questioning why schools cannot systematically engage all of its students actively and productively in relevant mathematics learning, notwithstanding the declared will of all involved. In other words, instead of seeing research as a mean to change practice, perhaps researchers should take practice itself—as it happens in most schools, outside the fixed environments designed by researchers—as a mean to change research theories, methodologies and approaches.

2.5 Research Improves Practice

The fifth and final truth concerns the gap between research and practice (Sriraman and English 2010). In the introductory chapter of the Third International Handbook of Mathematics Education, Clements (2013) poses a crucial question for all of those involved in mathematics education research:

> Why has there not been a marked improvement, given the large amount of mathematics education research conducted around the world, and over a very long period of time, with respect to such fundamentally important curriculum matters? (p. x, xi).

Given that mathematics education as a field of research is not only oriented to describing and analysing practice, but (and perhaps more importantly) to prescribe or at least identify good practice (Jablonka et al. 2013, p. 47), this situation is worrisome.

As I explore elsewhere (Pais and Valero 2012), the discrepancy between the sophistication of research and the lack of change in school mathematics is often displaced from research and posited on the way governments, schools and teachers fail to "acquire" and implement the knowledge originating from the academia. In research, everything goes well; we know the best methods, theories and strategies. The problems of implementation rest in the school settings. Lundin (2012) has recently discussed the fallacy of this line of argumentation. What he calls *the standard critique of mathematics education* consists of describing the current state of affairs of school mathematics as suffering from a variety of malfunctions, and the role of mathematics education research to fix them. The problem with this argumentation is that it eschews research from a critical analysis of its own role in the creation of the very same gap that it so eagerly strives to close. As argued by Klette

(2004), the problem of change in mathematics education reforms is not just a problem of "application" but may very well be an embedded part of research itself. She argues that the "denial of change" (p. 3) is being constructed from the beginning, in the theoretical, methodological and conceptual ways in which research is done.

3 Power in Mathematics Education

If we undertake a Foucauldian reading of truth and power, then the question to be asked is: what are the power relations at work in the production of such truths in mathematics education? Foucault (1979) suggests that the production and maintenance of a truth, instead of deriving from some universal knowledge about the world, is rather the result of particular individual interests. In a way, for Foucault, we tend to adopt the truths that are more convenient for the achievement of our own goals. As researchers, we cannot be blind to the fact that there are obvious benefits from the belief that mathematics is precious knowledge, a keystone of modern society, and an inescapable tool for citizenship. On the other hand, by positing mathematics for all as a goal to be achieved, and by asserting the importance of research in this process (against the malaises of practice) we set the ideological frame wherein we can continue to work, receiving our salaries, progressing in our careers, participating in conferences, travelling, enjoying ourselves. Such are the relations of power in which we are all involved, and which produce the truths that we take for granted when thinking about mathematics education.

As noticed by Foucault (1979), power is only exercised between free subjects, who might not recognise themselves as actors of power. Moreover, power is not a substance that can be deposited in subjects (the non-Foucauldian notion of *em-power*) or kept by some sovereign figure (the typical case here being the monarch). The main objective when analysing power relations is not so much to decipher how power is present in "such or such" institution, or group, or elite, or class but rather how all the individuals "freely" participate in a certain technique or exercise of power. An analysis of the power relations in mathematics education will thus refrain from framing the problem in terms of a struggle between those who have power (the usual suspects: governments, bureaucrats, regulatory agencies) and those who have not (researchers, teachers, students). Instead, Foucault invites us to posit ourselves as part of the problem, as free subjects that participate in power relations within a certain structural arrangement.

This approach to power however contrasts with the way in which power is usually perceived in mathematics education. As analysed by Skovsmose and Valero (2008), mathematics education is seen as something through which people can be *empowered* (e.g. NCTM 2016). Mathematics gives power to people, whether through the intrinsic characteristics of mathematics itself (logical thinking, abstraction); by providing students with psychological meaningful experiences (solving problems, metacognition); by enhancing the relation between cultural background and foreground therefore allowing students to learn 'in context' (connection between every day practices and school mathematics; providing opportunities to envision a desirable range of future possibilities); or by exploring situations of 'mathematics in action' which makes visible the way mathematics formats reality (exploring real mathematical models in a critical way). Such an approach to power, as a substance that "empowers", is at odds with Foucault's analysis, where power is instead to be perceived as circulating through a micro-physics of practice. The very attempt made by the mathematics education community to empower people through mathematics disavows a more structural understanding of how this same effort is already part of a power relation and a regime of truth that posits mathematics as an important knowledge and competence to master the world. What researchers miss to recognise (or accept) is the way in which mathematics empowers people not so much because it provides some kind of knowledge or competence to them, but because it gives people a *value*. It allows students to accumulate credit in the school system that will allow them to continue studying and later to achieve a comfortable place in the economic and social order. Mathematics empowers people because it is posited as an economically valuable resource.

Elsewhere I have shown how the discourse around the importance of mathematics as knowledge and competences constitutes an ideology set on effacing the role which school mathematics plays in political economy (Pais 2013, 2015). However, to assume that school mathematics is more about credit than about mathematics (Baldino and Cabral 2013; Pais 2012) implies questioning the entire discourse sustaining mathematics education research, thus jeopardizing the central role mathematics has in education, with all the consequences this will have for our work. The crude reality that for many people around the world mathematics is no more than a meaningless school subject that they need to pass in order to go on with life that it is not for all, and that research grows irrespectively of what is happening in schools, must remain either silent or conceived as an obstacle likely to be solved through better research and teaching practices. The challenge is thus to posit these "malfunctions" as the concrete truths of today's mathematics education.

4 Truth in Mathematics Education

Such a move encompasses a conceptualization of truth different from the Foucauldian one. Foucault was interested in deciphering the mechanisms (the regimes) by which a statement becomes perceived as being "true", that is, accepted as natural and beyond questioning. The five truths that I have elicited are examples of such approach to truth in mathematics education. In this vein, truth is something that is all too visible, it is everywhere. The challenge is to analyse how what appears as truth is indeed the result of a historical and discursive process that, far from being natural, is born out of regimes of interests and power relations.

French psychoanalyst Jacques Lacan introduces a somehow different conceptualisation of truth. For Lacan truth manifests itself through what fails (Lacan 1990). If we consider an analysand freely speaking with her analyst within the context of an analysis, truth is not to be confused with the narratives that she tells about herself (episodes from her childhood, the story of her marriage, parenthood, professional achievements and deadlocks, etc.). Instead, the truth of her discourse only emerges surreptitiously through slips of tongue, puns, silences, or any other impasses in her discourse. These "malfunctions" that break the flow of the ego's narrative are the truth about the subject. We cannot directly understand them (contrary to the truth-narrative that the patient tells, which is effortlessly understandable), rather they signal an inconsistency that stands for truth as such.

What can we infer if we apply this notion of truth to mathematics education research? I suggest that the truth of mathematics education is not to be found in the official narrative ("mathematics for all", the importance of mathematics for mundane activities, the idea that research improves practice, etc.) but precisely in the hindrances that disturb or do not fit into this narrative (the student who refuses to learn, the persistence of failure in school mathematics, the evidence that people do not use mathematics in their daily lives, etc.). All these obstacles tend to be foreclosed by research, by creating the narrative that mathematics is for all, by organising classroom arrangements where students apparently learn important mathematics for their lives, or by continuously assuming that more and better research is needed to improve school mathematics. To let the truth speak means to pay attention to what is failing in mathematics education.

Against this background, one of the first implications for research is to study what *fails*. As I explore elsewhere (Pais 2014), researchers tend to focus on the exploration of successful experiences. It will not be easy for the reader to find a study that takes failure in itself and uses it to shed light on the contradictions of the whole system.[3] Research is animated by a sense of "positivity", and values situations where, notwithstanding all the difficulties, a breakthrough was possible (Gutiérrez 2010; Presmeg and Radford 2008; Sriraman and English 2010). As posited by Gutiérrez, "it is important to highlight the features of practice that coincide with certain kinds of students engaging/succeeding in school mathematics (and this form is much more productive than focusing on failure and/or disengagement)" (2010, p. 52). Though this approach may be convenient, it makes impossible a broader critique of the equity model in which current schooling is based. Moreover, it provides the ideological frame against which researchers can continue doing their work without questioning the economically rooted reasons of failure.

[3]An exception are the works or Roberto Baldino and Tânia Cabral.

5 Truth, Accumulation and Capitalism

At stake here is what Lacan (2007) calls the logic of *accumulation* that characterizes modern science under the auspices of capitalist economy. Within capitalism, any measure has to produce surplus-value, otherwise it is discarded as obsolete, against the rules of the market, and the like.[4] And the same with science. Any scientific result that threatens the homogeneity of science, its corpus of truth, results in a crisis. Modern science is built as an accumulative regime of knowledge, inasmuch as capitalist economy has at its core, the accumulation of capital. Any threat to this cycle of accumulation is seen as irrational, retrograde, and even impossible.[5]

As recently explored by Lacanian philosopher Samo Tomšič (2015), one way of describing capitalism is that it is life without negativity, that is, the efficiency and the logic of capitalism is supported by a fantasy/ideology of a subjectivity and a society without negativity (p. 7).[6] Capital presupposes a life without subjects, only individuals, acting according to the social demand, to the social place assigned to them. The capitalist system has difficulties to deal with people that somehow do not fit into what is expected them to be, from individual cases such as Julian Assange or Nadezhda Tolokonnikova, to great masses of refugees and migrants that stand for what Rancière (1995) called the *part of no part* of the current political order (and, as a no part, end up dying in the Mediterranean sea or exploited into slavery as is happening now at the core of the European Union). These singularities have the potential to point towards the inconsistencies of the entire system, thus allowing for a questioning of capitalism as the global structural arrangement in place today. However, as pointed out by Tomšič, "the subject's non-identity is perceived as secondary and as something that could be abolished simply by 'correcting' the structural relations that dim brought the subject into existence" (p. 65). Examples of these "corrections" are the EU-Turkey agreement to deal with the refugee crisis—where the European Union paid billions of euros for the Turkish government to keep refugees outside Europe—or the entire industry around charity and philanthropy (with the United Nations leading the way). Capitalism produces a "world-view", a reality that appears to function (albeit some correctable malfunctions), a reality without lack or negativity (Tomšič 2015, p. 96). In other words, and to recover our previous discussion, a reality that does not burden itself with truth.

The same logic of foreclosure of the subject and of truth is at work in modern science. Lacan attributes science's prodigious fecundity to the fact that it wants to

[4]Suffice to think about the hysterical reaction every time someone suggests an increase in social benefits, a reduction of the working hours, or a public investment in public healthcare and education.

[5]The history of modern science is rich in episodes that show how difficult it is for results that do not fit into a certain stablished worldview to be accepted—Copernicus' model of the universe is perhaps the most well-known example, but we can also mention the introduction of non-Euclidian geometries and non-standard analysis in mathematics, Darwin's theory of natural evolution in biology, Marx's works on political economy or Freud's studies of the human psyche.

[6]In this sense, capital is creative potential, a specific form of vitalism.

know nothing about truth as cause (Skriabine 2013, p. 52). Truth as a cause is not to be confused with truth as *adequatio rei intellectus*, correspondence of the thing to the mind—in which science has thrived. Instead, it signals the potential that science has to explore what fails, what cannot be immediately assimilated into a given "worldview", without a radical change of that worldview itself. Such a gesture goes against the accumulative spirit of science, where attempts to re-consider the direction of scientific development and knowledge production are seen as backward and negative. What is important is to keep the cycle of scientific production and accumulation non-interrupted. The challenge for science today is to mobilise the subversive dimension of modern science, its inherent *negative* core, its *passion for truth*. Not the Foucauldian "factual" truth, but truth as such in the gap of a certain knowledge.

As I have been showing throughout this chapter, mathematics education, as a science, is not immune to this drive towards accumulation, noticeable in the way it privileges the exploration of successful situations, the demand to produce implications for agents and institutions, the pressure to publish articles and books that contribute to the enlargement of the field. All this keeps the system running, thus disavowing a questioning of the entire purpose of the educational industry that mathematics education has become.

6 Final Remarks: Revisiting the Five Truths

The five truths previously discussed function in a way as to disavow the truth of school (mathematics). To use Althusser's distinction between ideology and science (Althusser 2008), the truths of the field keep mathematics education at the level of ideology. This is what elsewhere I called the *narcissism of mathematics education* (Pais 2017), where, by ignoring the concrete problems experienced by teachers and students in schools, mathematics education research only reinforces its own prejudices about school mathematics. My plea is for researchers to pay attention to the evidence coming from schools, and use it to confront their assumptions about the importance of both school mathematics and of research. A plea in all identical to the one made by Max Planck to his fellow physicians colleagues one hundred years ago when confronted with the inadequacies of classic mechanics to explain the results emerging from quantum experimentations. Instead of trying to fit what we observe into an already formed frame (one informed by the five truths), we need to take what we observe seriously and build research that fits these observations. Researchers need to be dragged from their complacent truths by the brute facts observed in their laboratories—schools. Examples of such brute facts were already explored in this chapter, and they include the endemic nature of failure in school mathematics, the fact that people do not use mathematics outside school, that research does not improve practice, and that mathematics is not for all. To take reality as it is, with all its tensions and contradictions—instead of organising experiments where everything is set up as to guarantee that a meaningful mathematics education will occur, what Skovsmose calls the "prototypical classrooms" of research (2005)—is the only way for mathematics education to evolve as a science. This can be a painful process, as it implies questioning the very some truths that currently sustain our work as researchers.

In the guise of conclusion, I revisit the five truths previously listed and elaborate, for each one, concrete implications that many of us can start implementing next Monday morning.

6.1 Mathematics Should Be Enjoyable

My suggestion is for us to assume that mathematics is for many students a tasteless, meaningless and even traumatic school subject that they need to pass in order to carry on with their lives. Students might need to do school mathematics as part of their education, but they do not have to like it.

6.2 The Importance of Mathematics

I suggest placing the importance of mathematics not in terms of its inherent characteristics—problem solving, utility, beauty, cultural possibilities, etc.—but in terms of its attendant submissions to economic criteria and goals. In Pais (2013, 2014) I argue that by positing the importance of school mathematics in terms of *knowledge* and *competence*, research provides an ideological screen against the role school mathematics plays within capitalist schooling. My suggestion is to conceive the importance of mathematics not in terms of mathematics itself, but in terms of the place this subject occupies within a given structural arrangement, that is, in terms of the *value* that school mathematics has. As teachers, it implies being honest with our students and openly say that not only they do not have to "like" mathematics, its presence in the school curriculum has nothing to do with its use value, but with the value that they will get from passing the exam. Share our own contradictions with students and let them be aware of our own doubts as teachers and our criticism of schooling. Again, we might be obliged to perform certain tasks (like doing routine and stupid exercises to prepare students for an exam), but we do not have to like it.

6.3 Mathematics for All

We need to assume that failure is endemic to schooling. Instead of running after the hysterical societal demand of mathematical equity, developing increasingly refined stratagems to better teach and learn mathematics that only seem to function in the controlled reality of a research setting, perhaps we should acknowledge the crude reality that mathematics is not for all. Schools, however uncomfortable such awareness may be, are places of selection and teachers are agents of exclusion. These are the conditions of today's schooling, and research cannot afford dismissing them as being beyond its field of action. Publicly assuming that mathematics is not for all may not solve any problem, but at least does not mask it.

6.4 Researching Success

See Sect. 4. There is a need to research what fails not only in the practice of others but also in our own practice as researchers.

6.5 Research Improves Practice

If researchers know so well what needs to change in school mathematics, perhaps they should go to schools and work as teachers. It takes a lot of imagination to understand how researchers can change the problems of school mathematics. If teachers, being the ones who know the students, the school, their families, the community, cannot solve the problems, how can a researcher, who is not immersed in the school, do it? On the other hand, teachers will benefit from having more time to develop their own research, including researching their own practice. My suggestion is thus to equally distribute both teaching and research among teachers and researchers. Every teacher will also have time to do research, and every researcher will have time to teach in schools.

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